

International Harmonized Research Activities (IHRA)

Biomechanics Working Group

Final Minutes of Meeting held at Stapp, San Diego, California October 28, 1999

Attendees:

Rolf Eppinger	Chair / NHTSA
Jac Wismans	EU/EEVC WG12
Marianne Hoofman	TNO/ Observer
Dominique Cesari	INRETS/EU/EEVC
Risa Scherer	WorldSID Task Group
Farid Bendjellal	OICA/ Renault
Koshiro Ono	JARI/ JMOT/ Japan
Bud Mertz	OICA/ GM
Suzanne Tylko	Transport Canada/Canada
Toru Kiuchi	OICA/ Toyota
Keith Seyer	Transport & Regional Services Australia

Opening of Meeting:

The chair welcomed the delegates.

1. Acceptance of Previous Minutes:

Draft minutes for the meeting held September 27-28, 1999 in Lyon, France were reviewed:

Corrections: Farid Bendjellal 's name was corrected throughout the document.

2. Anthropometry

Review & follow up of previous discussions

- 5th & 50th percentile UMTRI data were judged to be most amenable/ appropriate for dummy design application. The external geometry of the HSRI forms (UMTRI) can be used together with RAMSES U.S./ Canada data.

- In response to concerns pertaining to the discrepancies observed between the two U.S. databases, Jack Wismans confirmed that the most recent RAMSES data was the most reliable.
- The RAMSES U.S./Canada data is not proprietary.
- Members are in agreement to adopt UMTRI data for the 95th percentile male as well.
- Missing data will be replaced with RAMSES data where necessary.
- Farid Bendjellal suggests that it would be advantageous/ helpful to have a common set of anthropometric values for use by all design groups i.e.; ergonomics, dummy designers etc.
- Bud Mertz explained that at GM they use dummy articulated templates, obtained from the Hybrid III dummies.

Review tasks to be completed

- Keith Seyer will prepare a summary document for anthropometry.

3. Biofidelity Test Review

Review tasks to be completed

HEAD

- Rolf Eppinger will prepare a summary of the THOR pendulum tests.

LATERAL NECK

- Rolf Eppinger will check to see if additional cadaver data that includes T1 response and the head neck response are available.
- Rolf will also verify whether the lateral bending moment was intentionally omitted from NHTSA's recommendations
- Bud Mertz believes that there is more data available through Wayne State. The data are part of the data set for Test 2 by Patrick & Chou completed 25 years ago. There were apparently 10 volunteers in the original program. There are some oblique results available as well.

TORSO

- Rolf Eppinger will confirm arm placement for Wayne State sled tests;
- Rolf will clarify Heidelberg test fixture re apparent slight angulation of the plates.

PELVIS

- Jac Wismans will obtain a summary of the SID 2000 document for presentation to the committee.
- Farid Bendjellal will try to access data for upper and lower extremities.

4. Dummy Evaluation Methods

- Jac Wismans, Bob Hultman, and Prya Prasad are considering setting up a new committee concerning computer model validation. Also related to WG5 and WG1 activities (one-dimensional models).

Review tasks to be completed

- Rolf will check that the data are still available to compare the Marcus method with the 4 methods proposed by EEVC.
- Koshiro Ono will compare the proposed methods and provide a critique to committee members to assist in the selection of an acceptable methodology.

5. Injury Criteria

- Dominique Cesari has collected injury curves for the thorax and pelvis and observed that the sled test risk is very different from the pendulum test: Dominique recommends separating the risk curves for the sled and pendulum.
- Summary of data to data
 - ⇒ pelvis 2 curves
 - ⇒ head frontal only, HIC. There is potential for a kinematic criteria.
 - ⇒ neck kinematic response only
 - ⇒ abdomen still looking into this

Review tasks to be completed

- Dominique will prepare a summary for presentation at the next meeting.

6. New Business

Jac Wismans described current EEVC (and European) activities regarding the future frontal impact dummy (European contribution to THOR) and proposed that the IHRA Biomechanics work item. The role of the committee would be equivalent to that currently assumed with respect to WorldSID and would ensure harmonization of any future frontal dummy developments undertaken by the European community.

The Chairman agreed to take this into consideration.

EEVC and NHTSA will present their future plans in this field at the next IHRA meeting, in order to define a common strategy.

7. Next Meeting

Proposed date & place: February 11¹ Madrid, Spain.

Alternative: March 6 at SAE Detroit.

¹ IHRA Side Impact scheduled for Feb.7 & 8, WorldSID Feb. 9&10 2000.

SUMMARY OF TASKS TO BE COMPLETED²

ROLF EPPINGER

1. Prepare a summary of the THOR pendulum tests;
2. Check to see if additional cadaver data that includes T1 response and the head neck response are available;
3. Verify whether the lateral bending moment was intentionally omitted from NHTSA's recommendations;
4. Confirm arm placement for Wayne State sled tests;
5. Clarify Heidelberg test fixture set-up re plate orientation;
6. Check that the data are still available to compare the Marcus method with the 4 methods proposed by EEVC

BUD MERTZ

1. Check availability of volunteer data dating back to the Patrick & Chou experiments;
2. Check availability of oblique data.

JAC WISMANS

1. Obtain the revised draft of the SID 2000 document for presentation to the committee;

FARID BENDJELLAL

1. Access data for upper and lower extremities.

KOSHIRO ONO

1. Compare the proposed dummy evaluation methods and provide a critique to committee members to assist in the selection of an acceptable methodology.

KEITH SEYER

1. Prepare summary of anthropometry resolutions.

DOMINIQUE CESARI

1. Prepare a summary of all available/ proposed injury risk curves for presentation at the next meeting.

DANIUS DALMOTAS

1. Prepare review of field accident data for the next meeting.

² *Compiled from previous minutes*

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List of Documents

All delegates are reminded that any documents previously tabled should be resubmitted to the Secretary so that they can be filed and numbered.